STRUCTURAL EVALUATION OF WALL SLAB CONNECTION, INCORPORATING STEEL FIBRE SUBJECTED TO LATERAL CYCLIC LOADING

By

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DECLARATION

I **Ahmed Abdulrazzaq Nasser, 2009494456** confirm that the work in this report is my own work and the appropriate credit has been given where reference has been made to the work of other researchers.

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ABSTRATCT

Most reinforced concrete failures occur not because of any inadequacies in analysis of the structure or in design of the members but because of inadequate attention to the detailing of reinforcement. In the wall slab system, the lateral displacement imposed on the wall when subjected to lateral cyclic loading is likely to introduce significant unbalanced moments on the connection because the slab element of the system is fully restrained. The main aim of this study is to investigate and compare the structural performance of two types of wall-slab connection, namely cross and anchorage. This study enhances the understanding about the behaviour, structural design and economic aspect of the wall slab structural system in general and especially when subjected to lateral cyclic loading. Two specimens were constructed of similar dimension but with different connection detailing. A load actuator was positioned horizontally at the upper part of the wall in order to apply that lateral cyclic load. The anchorage type of connection experienced a more favorable effect of confinement, which kept the inner structure of the connection preserved and prevented the formation of the plastic hinge at the connection. That means that the connection escaped failure because of the good reinforcement detailing. Furthermore, a high degree of ductility was reported for the anchorage connection of approximately (μ=9) which is almost double the value recorded for the cross connection. This means that the anchorage connection managed to prevent lateral expansion of the system and hence maintain strength during post-elastic stage.

Keywords: wall-slab connection, IBS, steel fibre, crack propagation

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